Space Weather Forecast

Issued on Wednesday 5 March 2025 at 01:17 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate flares (Minor-Moderate radio blackouts) throughout. Minor/Moderate geomagnetic storm (G1/G2) Day 1 and Day 4.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity is Low, with occasional common class flare observed.

The facing side of the Sun displays eight sunspot regions. The largest region in the southeast continues to show growth. A couple of the other regions have also shown some increase in complexity in the past UTC day, albeit to no notable result in flare activity thus far.

No Earth-directed Coronal Mass Ejections (CMEs) were identified in available satellite imagery.

Solar Wind / Geomagnetic Activity: Solar winds have changed little in the past 24 hours following the weekend fast wind enhancement and remain at mostly Slightly Elevated levels. The Interplanetary Magnetic Field was at mostly Weak levels and the north-south component was rather variable and Weak until around 04/1900UTC when a period of southward directed component was observed and probably related to the anticipated glancing blow Coronal Mass Ejection (CME). The net result of the above solar wind measures was Quiet geomagnetic activity, becoming Ubsettled to minor storm level to end the day.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate levels expected, with a Chance of isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: The CME that departed the sun on 01/1730UTC from the southeast quadrant is probably now affecting Earth as a glancing blow and impacts will likely continue into Day 1 (5 March). This is the only CME in the forecast.

Slightly Elevated winds may become Elevated at times on Day 1 otherwise expected to continue declining towards Background over coming days. On Day 4 (8 March) the next fast wind related to a coronal hole may reach Earth with elevated to strong levels.

Geomagnetic activity mostly at Quiet to Unsettled levels through the period but on Day 1 (5 March) and probably again on Day 4 (8 March) Active to minor geomagnetic storm levels may reach

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Met Office

Space Weather Forecast

Moderate geomagentic storm levels

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	5	1	30
Strong	G3	No	1	1	1	0
Severe	G4	No	1	1	1	0
Extreme	G5	No	1	1	1	0

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	1	1	1	1

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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